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AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1. **(Currently Amended)** A method comprising:

identifying at least a subset of a plurality of subcarrier(s) within a wireless channel that fail to meet a threshold channel performance metric;

deactivating the identified subset of the plurality of subcarriers; and

selectively distributing a power budget across a remaining subset of ~~the plurality of~~ active subcarriers (N_{on}) to provide a substantially optimal channel throughput within the given power budget <u>by determining a throughput for each of a plurality of combinations of modulation and encoding type (RATE(s)), identifying a maximal rate for a given set of channel characteristics and distributing the overall transmit power budget P_{total} among the active subcarriers according to the following algorithm for generating a power coefficient for an ith subcarrier,</u>

$$P_i = \frac{\sigma_i^2}{\sum_{j=1}^{N_{on}} \sigma_j^2} \cdot P_{total} \text{ , for } i=1...N_{on}.$$

2. **(Cancelled)**

3. **(Currently Amended)** A method according to claim <u>1</u> ~~2~~, the identifying underperforming subcarriers comprising:

sorting the subcarriers according to a channel performance metric; and

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identifying as a threshold among the sorted subcarriers a subcarrier that fails to meet a

channel performance metric threshold, wherein the subcarriers above or below the

threshold are identified as bad subcarriers.

4.   (Original) A method according to claim 3, wherein the channel characteristics used to

identify underperforming subcarriers are obtained from a remote device.

5.   (Original) A method according to claim 4, the channel state information comprising one

or more channel processing parameters including bit loading, coding type, modulation

type and power allocation, determined by the remote device.

6.   (Original) A method according to claim 4, wherein the channel state information is

representative of one or more of channel performance characteristics and channel quality

characteristics.

7.   (Original) A method according to claim 6, wherein the channel performance

characteristics include radio frequency (RF) characteristics comprising one or more of a

received signal strength indication (RSSI), a signal to noise ratio (SNR), a signal to

interference and noise ratio (SINR), fading characteristic(s), and Doppler characteristics.

8.   (Original) A method according to claim 6, wherein the channel quality characteristics

include one or more of a bit-error rate (BER), a packet-error rate (PER), a symbol-error

rate (SER), and a frame error rate (FER).

9.   (Original) A method according to claim 3, wherein the subcarriers are initially sorted

based, at least in part, on an effective noise power associated with each of the subcarriers.

10. (Original) A method according to claim 9, wherein the threshold channel performance

metric is a signal to noise ratio (SNR).

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11.   (Original) A method according to claim 10, wherein bad subcarriers are identified as

those failing to meet a threshold signal to noise ratio.

12.   **(Cancelled)**

13.   **(Cancelled)**

14.   (Original) A method according to claim 1, further comprising:

        issuing a message to a remote transmitter to apply the power distribution among

        the remaining subset of the plurality of subcarriers.

15.   (Original) A method according to claim 3, wherein the channel characteristics used to

identify underperforming subcarriers are measured at a local receiver.

16.   (**Currently Amended**) An apparatus comprising:

        a transceiver, to establish a multicarrier communication channel with a remote

        transceiver; and

        a subcarrier management agent (SMA), coupled with the transceiver, to identify at

least a subset of a plurality of subcarrier(s) within a wireless channel that fail to meet a

threshold channel performance metric, deactivate the identified subset of the plurality of

subcarriers, and to selectively distribute a power budget across a remaining subset of ~~the~~

~~plurality of~~ active subcarriers (N_{on}) to provide a substantially optimal channel throughput

within the given power budget, <u>wherein the SMA determines a throughput for each of a</u>

<u>plurality of combinations of modulation and encoding type (RATE(s)), identifies a</u>

<u>maximal rate for a given set of channel characteristics, and distributes the overall transmit</u>

<u>power budget P_{total} among the remaining active subcarriers by generating a power</u>

<u>coefficient for an ith subcarrier in accordance with the following algorithm,</u>

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$$P_i = \frac{\sigma_i^2}{\sum_{j=1}^{N_{on}^{opt}} \sigma_j^2} \cdot P_{total} \text{ , for } i=1 \dots N_{on}.$$

17. (Original) An apparatus according to claim 16, wherein the SMA identifies underperforming subcarriers by sorting the subcarriers using a channel characteristic of the subcarriers, and identifying as a threshold among the sorted subcarriers a subcarrier that fails to meet a channel performance metric, wherein the subcarriers above or below the threshold are identified as bad subcarriers.

18. (Original) An apparatus according to claim 17, wherein the SMA sorts the subcarriers according to an effective noise power (σ) of the subcarriers, and then identifies as the threshold a subcarrier that fails to meet a signal to noise (SNR) threshold (γ).

19. (Original) An apparatus according to claim 18, wherein one or more of the effective noise power and the signal to noise ratio associated with the subcarriers is determined from received, or perceived, channel state information.

20. (Original) An apparatus according to claim 18, the channel state information comprising one or more channel processing parameters including bit loading, coding type, modulation type and power allocation, determined by the remote device.

21. (Original) An apparatus according to claim 20, wherein the channel state information is representative of one or more of channel performance characteristics and channel quality characteristics.

22. (Original) An apparatus according to claim 21, wherein the channel performance characteristics include radio frequency (RF) characteristics comprising one or more of a

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received signal strength indication (RSSI), a signal to noise ratio (SNR), a signal to

interference and noise ratio (SINR), fading characteristic(s), and Doppler characteristics.

23.   (Original) An apparatus according to claim 21, wherein the channel quality

characteristics include one or more of a bit-error rate (BER), a packet-error rate (PER), a

symbol-error rate (SER), and a frame error rate (FER).

24.   **(Cancelled)**

25.   **(Cancelled)**

26.   **(Currently Amended)** An apparatus according to claim <u>16</u> ~~25~~, wherein the power

coefficients are applied to a weighting block of the transceiver prior to transmission of a

channel of the plurality of active subcarriers.

27.   **(Currently Amended)** A system comprising:

one or more dipole antenna(e);

a transceiver, coupled with at least a subset of the one or more antenna(e), to

establish a multicarrier communication channel with a remote transceiver; and

a subcarrier management agent (SMA), coupled with the transceiver, to identify at

least a subset of a plurality of subcarrier(s) within a wireless channel that fail to meet a

threshold channel performance metric, deactivate the identified subset of the plurality of

subcarriers, and to selectively distribute a power budget across a remaining subset of ~~the~~

~~plurality of~~ <u>active</u> subcarriers <u>(N_{on})</u> to provide a substantially optimal channel throughput

within the given power budget, <u>wherein the SMA determines a throughput for each of a</u>

<u>plurality of combinations of modulation and encoding type (RATE(s)), identifies a</u>

<u>maximal rate for a given set of channel characteristics, and distributes the overall transmit</u>

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power budget P_{total} among the remaining active subcarriers by generating a power coefficient for an ith subcarrier in accordance with the following algorithm,

$$P_i = \frac{\sigma_i^2}{\sum_{j=1}^{N_{on}^{apt}} \sigma_j^2} \cdot P_{total} \text{ , for } i=1...N_{on}.$$

28. (Original) A system according to claim 27, wherein the SMA identifies underperforming subcarriers by sorting the subcarriers using a channel characteristic of the subcarriers, and identifying as a threshold among the sorted subcarriers a subcarrier that fails to meet a channel performance metric, wherein the subcarriers above or below the threshold are identified as bad subcarriers.

29. (Original) A system according to claim 28, wherein the SMA sorts the subcarriers according to an effective noise power (σ) of the subcarriers, and then identifies as the threshold a subcarrier that fails to meet a signal to noise (SNR) threshold (γ).

30. (Original) A system according to claim 29, wherein one or more of the effective noise power and the signal to noise ratio associated with the subcarriers is determined from received, or perceived, channel state information.

31. (Original) A system according to claim 28, the channel state information comprising one or more channel processing parameters including bit loading, coding type, modulation type and power allocation, determined by the remote device.

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32. (Original) A system according to claim 28, wherein the channel state information is representative of one or more of channel performance characteristics and channel quality characteristics.

33. (Original) A system according to claim 28, wherein the channel performance characteristics include radio frequency (RF) characteristics comprising one or more of a received signal strength indication (RSSI), a signal to noise ratio (SNR), a signal to interference and noise ratio (SINR), fading characteristic(s), and Doppler characteristics.

34. **(Cancelled)**

35. **(Cancelled)**

36. **(Currently Amended)** A system according to claim $\underline{27}$ ~~35~~, wherein the power coefficients are applied to a weighting block of the transceiver prior to transmission of a channel of the plurality of active subcarriers.

37. **(Currently Amended)** A storage medium comprising content which, when executed by an accessing device, enables the device to identify at least a subset of a plurality of subcarrier(s) within a wireless channel that fail to meet a threshold channel performance metric, ~~deactivating~~ to deactivate the identified subset of the plurality of subcarriers, and to selectively distribute a power budget across a remaining subset of ~~the plurality of~~ active subcarriers $(\underline{N_{on}})$ to provide a substantially optimal channel throughput within the given power budget, and comprising content to cause the accessing device to determine a throughput for each of a plurality of combinations of modulation and encoding type (RATE(s)), identify a maximal rate for a given set of channel characteristics and to

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distribute the overall transmit power budget P_{total} among the active subcarriers according

to the following algorithm for generating a power coefficient for an ith subcarrier,

$$P_i = \frac{\sigma_i^2}{\sum_{j=1}^{N_{on}^{opt}} \sigma_j^2} \cdot P_{total} \text{ , for } i=1...N_{on}.$$

38. (Original) A storage medium according to claim 37, wherein the content to identify the subset of subcarriers that fail to meet a threshold channel performance metric includes content to cause an accessing device to sort the plurality of subcarriers by a channel characteristic, and to identify a threshold among the sorted subcarriers a subcarrier that fails to meet a channel performance metric threshold.

39. (Original) A storage medium according to claim 38, wherein the channel characteristic is an effective noise power (σ), and the channel performance metric is a signal to noise ratio (γ).

40. (Cancelled)

41. (Cancelled)